



Anthelmintic effects of forage chicory against parasitic nematodes in cattle

Pena-Espinoza, Miguel Angel; Williams, Andrew; Thamsborg, Stig Milan; Enemark, Heidi

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Pena-Espinoza, M. A., Williams, A., Thamsborg, S. M., & Enemark, H. (2014). *Anthelmintic effects of forage chicory against parasitic nematodes in cattle*. Abstract from 13th International congress of parasitology, Mexico.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Anthelmintic effects of forage chicory against parasitic nematodes in cattle

Peña, Miguel¹, Williams, Andrew², Thamsborg, Stig², Enemark, Heidi¹

¹Technical University of Denmark ²University of Copenhagen, Denmark

BACKGROUND: Chicory (*Cichorium intybus*) has potential as a natural anthelmintic in livestock, however evidence of efficacy against cattle nematodes is lacking. Here, we investigated anthelmintic effects of chicory in stabled calves.

METHODS: Jersey male calves (2-4 months) were stratified by live weight and allocated randomly to 2 groups: chicory (CHI, n=9) and control (CON, n=6). CHI and CON calves were fed with forage chicory silage (cv. *Spadona*) and hay *ad libitum*, resp., for 8 weeks. After 2 weeks, calves were infected with 10,000 *Ostertagia ostertagi* and 65,000 *Cooperia oncophora* larvae. Fecal egg counts (FEC) and live weights were assessed weekly. Six weeks after infection, calves were slaughtered for worm recovery. In parallel, total sesquiterpene lactone (SL)-extracts from forage chicory (*Spadona* and cv. *Puna II*) were prepared and incubated with first-stage larvae (L1) of *O. ostertagi*. L1 viability was evaluated after 12 hours incubation.

RESULTS: Mean FECs (corrected for faecal dry matter) were not different between groups ($p=0.14$), but weight gains were higher in CHI calves (+ 35%; $p<0.05$). Mean worm counts for *O. ostertagi* adults were 1599 and 3752 in CHI and CON, respectively ($p<0.01$). Worm counting of *C. oncophora* is ongoing. SL extracts from *Spadona* chicory were toxic to *O. ostertagi* L1 *in vitro*, with a mortality of 99% at concentrations ≥ 500 mg/mL ($EC_{50} = 132.8$ mg/mL). *Puna II*-SL extracts induced a L1 mortality of only 37% at the highest concentration tested (2000 mg/mL).

CONCLUSIONS: Based on these preliminary results, chicory silage (*Spadona*) has significant *in vivo* anthelmintic effects against *O. ostertagi*, possibly mediated by SL, and marked differences exist in the anti-parasitic activity of SL extracts from two different chicory cultivars.